

## REMARKS

### I. Introduction

In response to the Office Action dated March 13, 2003, claims 3, 5, 22-34, 38, 40, 57-69, 73, 75 and 92-104 have been cancelled, claims 1, 4, 6, 9, 36, 39, 41, 44, 71, 74, 76 and 79 have been amended and new claims 106-111 have been added. Claims 1, 2, 4, 6-21, 35-37, 39, 41-56, 70-72, 74, 76-91 and 105-111 remain in the application. Re-examination and re-consideration of the application, as amended, is requested.

### II. Specification Amendments

The specification has been amended as indicated above to include correct serial numbers. No new matter is involved.

### III. Claim Amendments

Applicants' attorney has made amendments to the claims as indicated above. Specifically, independent claims 1, 36 and 71 have been amended to incorporate the limitations of 3 and 5, 38 and 40 and 73 and 75, respectively. In addition other corrective and clarifying amendments have been made to the claims as indicated.

### IV. New Claims

Applicants' attorney has added claims 106-111 as indicated above. Support for these claims can be found at page 7, lines 4-5 and page 13, lines 25-27. No new matter is involved.

### V. Non-Art Rejections

On page (2) of the Office Action, claims 1-105 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Office Action asserts that it is unclear/vague 1) what comprises the SGDBR laser claimed, 2) the configuration of the front and back mirrors and 3) the relationship of the gain section to the remaining sections of the laser and if the claimed invention includes an active region separate from the gain section.

Applicants respectfully traverse the rejection. Applicants first note that an SGDBR laser is not claimed, rather the claimed invention is directed to a controller, method and article for controlling for an SGDBR laser. The claims can not be found indefinite for failing to particularly point out and distinctly claim subject matter which Applicants *do not* regard as the invention. Moreover, the configuration and relationship of various sections of SGDBR lasers is known in the art. See e.g., page 4, lines 14-21 and page 7, line 16 to page 8, line 28 of the application as filed. A recitation of the specific configuration of a known device that merely bears a relationship to the claimed subject matter is not a requirement for definiteness. Accordingly, Applicants respectfully request withdrawal of the rejection.

Regarding claims 3-21, the Office Action asserts that it is unclear/vague how the DSP is interrelated an functions with the other elements of the claim and 1) dithers the front and back mirror, 2) uses a least mean squares estimator, 3)uses a block LMS algorithm etc..

In response, Applicants have amended independent claim 1 to recite that the controller comprises a digital signal processor (DSP) using a numerical minima search to control the front mirror current and the back mirror current to minimize the voltage monitored from the gain section of the laser to overcome the rejection.

#### VI. Prior Art Rejections

On page (3) of the Office Action, claims 1-105 were rejected under 35 U.S.C. §102(a) as being anticipated by Sarlet et al, Wavelength and Mode Stabilization of Widely Tunable SG-DBR and SSG-DBR Lasers (Sarlet).

Independent claims 1, 36, and 71 are generally directed to an apparatus, method and article of manufacture for controlling a sampled grating distributed Bragg reflector (SGDBR) laser. For example, claim 1 recites a controller for providing separate inputs to the laser including a front mirror current controlling a front mirror and a back mirror current controlling a back mirror to control the laser and a voltage monitor, coupled to a gain section of the laser for monitoring a gain voltage of the gain section and providing input of the gain voltage to the controller. The controller comprises a digital signal processor (DSP) using a numerical minima search to control the front mirror current and the back mirror current to minimize the voltage monitored from the gain section of the laser.

The cited reference, Sarlet, does not teach nor suggest these various elements of Applicants' independent claims.

Sarlet merely describes a mode stabilization scheme for a widely tunable SG-DBR and SSG-DBR lasers, showing that a minimum in active section voltage is obtained when a cavity mode and reflection peak of each DBR mirror are aligned. Sarlet notes that locking the laser to such a local minimum in active section voltage therefore ensures stable single-mode operation. However, Sarlet lacks any discussion about employing a digital signal processor using a numerical minima search as presently claimed.

Thus, Applicants respectfully submit that the present §102 rejection is overcome because each and every element of the claimed invention is not taught by the cited reference. In addition, Sarlet teaches away from Applicants' invention because it describes a wavelength stabilization circuit using two lock-in amplifiers which measure modulation components (induced from small sinusoidal signals added to the front and rear DBR currents) from an active section voltage. The drive currents for the front and rear DBR section are updated using a simple proportional controller. See page 1352, col. 2, lines 1-9 and FIG. 2.

Moreover, the various elements of Applicants' claimed invention together provide operational advantages over Sarlet. For example, as indicated by Sarlet, the small sinusoidal signals added to front and rear reflector will result in a frequency and power modulation. See page, 1353, col. 1, line 11 to col. 2, line 9. By employing a DSP using numerical minima search in the present invention, these modulations are avoided.

Thus, Applicants submit that independent claims 1, 36 and 71 are allowable over Sarlet. Further, dependent claims 2, 4, 6-21, 35, 37, 39, 41-56, 70, 72, 74, 76-91 and 105-111 are submitted to be allowable over Sarlet in the same manner, because they are dependent on independent claims 1, 36 and 71, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2, 4, 6-21, 35, 37, 39, 41-56, 70, 72, 74, 76-91 and 105-111 recite additional novel elements not shown by Sarlet.

VII Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

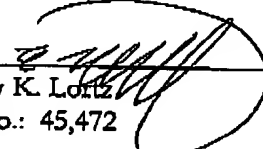
Respectfully submitted,

GATES & COOPER LLP  
Attorneys for Applicants

Howard Hughes Center  
6701 Center Drive West, Suite 1050  
Los Angeles, California 90045  
(310) 641-8797

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BKL:amb

By:   
Name: Bradley K. Lortz  
Reg. No.: 45,472

FAX RECEIVED  
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TECHNOLOGY CENTER 2800